



USER MANUAL

WP-Sine

‘AC Power from the battery’



Recreational vehicles • Caravans

Pleasure craft • Holiday homes

High frequency sine wave inverter



For safe and optimal performance, the sinewave inverter must be used properly. Carefully read and follow all instructions and guidelines in this manual and give special attention to the CAUTION and WARNING statements.

PLEASE KEEP THIS MANUAL FOR FUTURE REFERENCE

Disclaimer

While every precaution has been taken to ensure the accuracy of the contents of this guide, WhisperPower assumes no responsibility for errors or omissions. Note as well that specifications and product functionality may change without notice.

Important

Please be sure to read and save the entire manual before using your WhisperPower sinewave inverter. Misuse may result in damage to the unit and/or cause harm or serious injury. Read manual in its entirety before using the unit and save manual for future reference.

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1. INTRODUCTION

Thank you for purchasing the WhisperPower sinewave inverter. With our easy to use design, this product will offer you reliable service for providing AC power and 5V USB power for your home, cabin, RV or Trailer. The WhisperPower sinewave inverter can run many AC-powered appliances when you need AC power anywhere. The 5V USB power can charge many USB powered devices. This manual will explain how to use this unit safely and effectively. Please read and follow these instructions and precautions carefully.

IMPORTANT SAFETY INFORMATION

This section contains important safety information for the WhisperPower sinewave inverter. Each time, before using the WhisperPower sinewave inverter, READ ALL instructions and cautionary markings on or provided with the inverter, and all appropriate sections of this guide. The WhisperPower sinewave inverter contains no user-serviceable parts. See Warranty section for how to handle product issues.



WARNING: FIRE AND/OR CHEMICAL BURN HAZARD

· Do not cover or obstruct any air vent openings and/or install in a zero-clearance compartment.

WARNING: FAILURE TO FOLLOW THESE INSTRUCTIONS CAN RESULT IN DEATH OR SERIOUS INJURY

- When working with electrical equipment or lead acid batteries, have someone nearby in case of an emergency.
- Study and follow all the battery manufacturer's specific precautions when installing, using and servicing the battery connected to the inverter.
- Wear eye protection and gloves.
- Avoid touching your eyes while using this unit.
- Keep fresh water on hand in the event battery acid comes in contact with eyes. If this occurs, cleanse right away with extensive water for a minimum of 15 minutes and seek medical attention.
- Batteries produce explosive gases. **DO NOT** smoke or have an open spark or fire near the system.
- Keep unit away from moist or damp areas.
- Avoid dropping any metal tool or object on the battery. Doing so could create a spark or short circuit which goes through the battery or another electrical tool that may create an explosion.



WARNING: Shock Hazard. Keep away from children!

- Avoid moisture. Never expose unit to snow, water etc.
- Unit provides 230VAC, treat the output socket the same as regular wall AC sockets at home.

WARNING: Explosion hazard!

- DO NOT use the WhisperPower sinewave inverter in the vicinity of flammable fumes or gases (such as propane tanks or large engines).
- AVOID covering the ventilation openings. Always operate unit in an open area.
- Prolonged exposure to high heat or freezing temperatures will decrease the working life of the unit.

FCC INFORMATION

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generate, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

LIMITATIONS ON USE

Do not use in connection with life support systems or other medical equipment or devices.

2. INSTALLATION



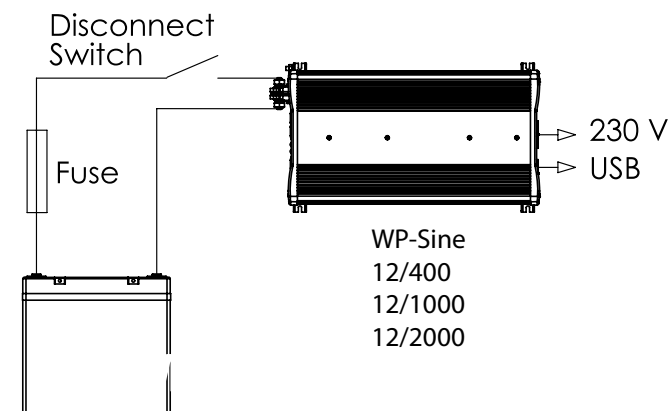
WARNING: WhisperPower recommends that all wiring be done by a certified technician or electrician to ensure adherence to the applicable electrical safety wiring regulations and installation codes. Failure to follow these instructions can damage the unit and could also result in personal injury or loss of life.

CAUTION: Before beginning your WhisperPower sinewave inverter Installation, please consider the following:

- The WhisperPower sinewave inverter should be used or stored in an indoor area away from direct sunlight, heat, moisture or conductive contaminants.
- When placing the unit, allow a minimum of 7.5 cm space around the unit for optimal ventilation.

MATERIAL PREPARE FOR INSTALLATION

Typical Wiring block diagram of the sinewave inverter:



12V Battery Bank

- The use of deep cycle battery is highly recommended for sinewave inverter application
- For battery size, you need to identify how much you will be using them between charges. WhisperPower recommends you purchase as much battery capacity as possible. See more on Battery Run time and Load in Section 3.

Fuse or Circuit Breaker

- DC-rated fuse or DC-rated circuit breaker connected along the DC positive line is required.
- Select a fuse or circuit breaker with a minimum of:
 - 63ADC (WP-Sine 12/400)
 - 150ADC (WP-Sine 12/1000)
 - 300ADC (WP-Sine 12/2000)
- Based on the size of the battery bank chosen on the 12V Battery Bank above, determine the overall short circuit current rating of the battery bank from the battery manufacturer. The fuse or circuit breaker chosen has to be able to withstand the short circuit current that may be generated by the battery bank.

Disconnect Switch

- Select a Disconnect Switch with the same or higher the rating of the selected fuse or circuit breaker from the above.
- The Disconnect Switch is used to disconnect the DC power between the sinewave inverter and the battery bank during service, maintenance or trouble shooting.

DC Input and Grounding Cable

- Use of low resistance wire is required for all the DC connections between the inverter and the battery bank.
- Use wiring with maximum cable length of 1.5 meter and minimal cross-sectional area of:
 - 10mm² (WP-Sine 12/400)
 - 25mm² (WP-Sine 12/1000)
 - 50mm² (WP-Sine 12/2000)
- Important: The unit is grounded through the ground stud of the unit located near the DC Input
- For the grounding cable connected between the sinewave inverter chassis to the earth ground, use a matching cable size as used on the DC Input Cable section.



INSTALLING THE SINEWAVE INVERTER SYSTEM

WARNING: Electrical Shock Hazard

The unit 'On/Off' switch does not disconnect the DC power from the battery. Use the DC Disconnect Switch or disconnect the DC input cables connection to disconnect the DC power from the battery before working on any circuits connected to the unit. Failure to follow these instructions can result in death or serious injury.

Sinewave inverter Installation:

- Choose an appropriate mounting location.
- For indoor use, the orientation of the unit can be mounted in any direction except with the DC Input panel facing downwards.
- For RV installation, the unit has to be mounted flat on horizontal surface.
- Drill the 4 mounting holes, position the mounting screws and place the inverter in position and fasten the inverter to the mounting surface.

Sinewave inverter Chassis Grounding Connection:

DANGER: The sinewave inverter chassis to be grounded properly. Never operate the sinewave inverter without proper grounding. Failure to do so will result in death or serious injury.

- Connect the grounding cable's ring terminal to the unit ground screw.
- Connect the other side of the cable to the common grounding point.

Sinewave inverter DC Input Connection:

CAUTION: Reverse the DC Input terminal will damage the unit and cannot be repaired. Damage caused by reverse polarity connection is not covered by the warranty.

- Connect one end of the negative DC input cable to the sinewave inverter DC negative terminal. Connect the other end of the negative DC input cable to the battery negative terminal.
- Make sure the Disconnect Switch is in the OFF position.
- Connect one end of the positive DC input cable to the sinewave inverter DC positive terminal. Connect the other end of the positive DC input cable to one of the terminal of the Disconnect Switch.
- Connect a DC input cable between the other terminal of the Disconnect Switch and one side of the terminal of the fuse holder.
- Connect a DC input cable between the other terminal of the fuse holder and the battery positive terminal.
- Install the selected fuse to the fuse holder.
- Turn Disconnect Switch to ON position.

Remote Switch (Optional for 1000 & 2000W) Connection:

- Insert the Remote Switch to the RJ11 Remote Port located at the Front AC panel of the sinewave inverter. Please note polarity.

Test the sinewave inverter connection:

- Turn unit on by pressing and holding the On/Off button on the main unit for about a second until a beep sound occur. The 'Status' light turns on indicating the WhisperPower sinewave inverter is ON. Check the digital display show measured battery voltage and output power alternatively. Both AC output and 5V USB are now available.
- Plug in a small AC load like a 40W table lamp or small appliance to the AC socket to verify AC is available.
- The unit is successfully installed and functioning properly.

3. UNIT OPERATION

WARNING: RISK OF EQUIPMENT DAMAGE

- Do not connect an AC power source like utility power or generator to the unit 230VAC outlets.

Turn ON and OFF the 230VAC and USB

- Press and hold the "Power/Select" button for 1 second until a beep is sounded. Display will show the measured battery voltage and output power alternatively. Status LED will turn green. Both 5V USB and 230VAC are available.
- Press "Power/Select" button to turn unit off.

Remote ON /OFF (Optional for 1000 & 2000W)

- If optional remote is used, the Remote ON/OFF momentary switch is connected in parallel with the "Power/Select" button on the unit. Same procedure applies to ON and OFF the unit.

Understanding the Display & Status LED (Only for 1000 & 2000W) Display:

'12.5' Display shows measured battery voltage
'0.80' Display shows total output AC power in kW (800W as shown)
'E01' Display shows error or warning code.
See trouble shooting section in details

Status LED:

Green: Unit operation is normal
Amber: Warning is detected. Unit will shutdown at any time. Please check error code to troubleshoot the unit.
Red: Error is detected and unit has shutdown. Please check error code to troubleshoot the unit.

Understanding the Error Code (Only for 1000 & 2000W)

Code	Condition	Corrective Action
E01	Unit has sensed input under voltage and has shutdown	Recharge battery immediately and restart unit
E02	Unit has sensed input over voltage and has shutdown	Check battery voltage or if any external charger is connected to the battery bank
E03	Unit output has sensed overload or short circuit and was shutdown	Check load connected to the output. Reduce load and restart the unit
E04	Unit has sensed internal temperature was high and has shutdown	Turn unit off and wait for 15 minutes before restarting. Check if any object has blocked the air flow of the unit
E05	Unit has sensed input voltage is low and warning occurs	Recharge battery as unit will shutdown shortly
E06	Unit has sensed load connected is close to overload shutdown limit	Reduce load
E07	Unit has sensed internal temperature is high and is close to thermal shutdown limit	Reduce load and check if any ventilation of the unit is blocked

AC Load on sinewave inverter

Although the sinewave inverter can provide high surge power up to two times the rated output power, some appliances may still trigger on the inverter protection system. A higher sinewave inverter is required for those appliances.

Estimate Run time on Load

Following run time are estimates, based on usage of a 12V-120Ah battery bank for reference. Actual run times may vary.

Load	Consumption	Estimate Run time
Cordless Phone	5W	180 hrs
Clock/Radio	8W	135 hrs
Table Lamp	40W/60W	27 hrs/ 18 hrs
Freezer (250 ltr.)	80W	15 hrs
20" LCD TV	100W	11.5 hrs
Refrigerator (500 ltr.)	120W	9 hrs
Sump Pump (1/2 hp)	350W	3 hrs
Microwave (mid-size)	1000W	49 min
Coffee Maker	1200W	37 min

4. TROUBLESHOOTING

To troubleshoot the unit, please note the error code display on the main unit and review the "Understanding the Error Codes" in section 3.

Problem	Symptom	Solution
No output voltage. And Status LED is off.	The unit is off	Turn unit ON by following the instruction in Section 4 to turn unit ON
	No power to inverter	Check fuse or the Disconnect switch (if installed) is either blown or turn OFF
No Output. Status LED is in Amber (Only for 1000 & 2000W)	Check error code on display	Verify the error condition and make correction

5. WARRANTY

Two Years Limited Warranty

The limited warranty program is the only one that applies to this unit, and it sets forth all the responsibilities of WhisperPower. There is no other warranty, other than those described herein. Any implied warranty of merchant-ability of fitness for a particular purpose on this unit is limited in duration to the duration of this warranty.

This unit is warranted, to the original purchaser only, to be free of defects in materials and workmanship for two year from the date of purchase without additional charge. The warranty does not extend to subsequent purchasers or users. Manufacturer will not be responsible for any amount of damage in excess of the retail purchase price of the unit under any circumstances. Incidental and consequential damages are specifically excluded from coverage under this warranty. This unit is not intended for commercial use. This warranty does not apply to damage to units from misuse or incorrect installation/connection. Misuse includes wiring or connecting to improper polarity power sources.

Limitations:

This warranty does not cover accessories, such as adapters and batteries, damage or defects result from normal wear and tear (including chips, scratches, abrasions, discoloration or fading due to usage or exposure to sunlight), accidents, damage during shipping to our service facility, alterations, unauthorized use or repair, neglect, misuse, abuse, failure to follow instructions for care and maintenance, fire and flood.

6. SPECIFICATIONS

NOTE: Specifications are subject to change without notice.

	WP-SINE 12/400	WP-SINE 12/1000	WP-SINE 12/2000	WP-SINE 12/1000 UK	WP-SINE 12/2000 UK
Article nr.	61120510	61121500	61122500	61121501	61122501
AC OUTPUT					
Power (Continuous)	400W	1000W	2000W	1000W	2000W
Power (Peak, 500 mSec)	800W	2000W	4000W	2000W	4000W
Output voltage	230V	230V*	230V	230V	230V
Output frequency	50Hz	50Hz*	50Hz	50Hz	50Hz
Total harmonic distortion (THD)	<5% true sine wave				
DC INPUT					
Nominal battery voltage	12V				
Operation range	10.5 .. 15.5V				
Input current	40A	94A	187A	94A	187A
No load consumption	0.4A typical	0.8A typical	1.6A typical	0.8A typical	1.6A typical
DC OUTPUT					
5V USB - Phone Charge	750mA				
DISPLAY					
LED Indicator	No	Yes	Yes	Yes	Yes
Digital display	Input Voltage / Current, Output Power				
PROTECTIONS					
Input Undervoltage Warning	11.2V	11.2V	11.2V	11.2V	11.2V
Input Undervoltage Shutdown	10.5V	10.5V	10.5V	10.5V	10.5V
Input Undervoltage Recovery	11.8V	11.8V	11.8V	11.8V	11.8V
Input Overvoltage Shutdown	15.5V	15.5V	15.5V	15.5V	15.5V
Output Power Warning	Yes	Yes	Yes	Yes	Yes
Output Power Shutdown	Yes	Yes	Yes	Yes	Yes
Output Short Circuit	Yes	Yes	Yes	Yes	Yes
Temperature Warning	Yes	Yes	Yes	Yes	Yes
Temperature Shutdown	Yes	Yes	Yes	Yes	Yes
Conformity	Directive EMC 2004/108/EC Low voltage directive 2006/95/EC				
Operating temperature range	-20 .. 55°C (derating above 40°C)				
Relative humidity in operation	95% without condensation				
Ventilation	Forced cooling				
Dimension (bxdxh)	175x220x82mm	175x323x87mm	230x416x112mm	175x323x87mm	230x416x112mm
Weight	1.7kg	2.9kg	5.5kg	2.9kg	5.5kg
Battery connection	M6 studs	M6 studs	M8 studs	M6 studs	M8 studs
Ground Lug Connection	M6 studs	M6 studs	M6 studs	M6 studs	M6 studs
AC output	1 x Schuko socket	1 x Schuko socket	2 x Schuko sockets	1 x UK socket	2 x UK sockets
Warranty	2 years				

7. CE MANUFACTURER DECLARATION

Product: WhisperPower WP-Sine 'AC Power from the battery'
Whisperpower guarantees that the unit complies with the relevant standards.

